29 April 2003
Application No.:09/757,856
Docket: 1028.co

## b.) Amendments to the Claims

1. (currently amended) A method for fusing an optical fiber lens, comprising:
injecting light into an optical fiber having a wedge-shaped fiber lens formed by polishing at a proximal end of the optical fiber;
detecting a diffraction pattern of the light exiting from ~~a~~ the fiber lens ~~at a proximal end of the optical fiber~~; and
electro-fusing the fiber lens in response to a two-dimensional distribution of the diffraction pattern.

2. (previously amended) A method as claimed in claim 1, wherein the step of injecting the light into the optical fiber comprises energizing a laser that is coupled to a distal end of the optical fiber.

3. (original) A method as claimed in claim 1, wherein the step of detecting the diffraction pattern comprises detecting a far-field diffraction pattern.

4. (original) A method as claimed in claim 1, wherein the step of detecting the diffraction pattern comprises positioning a two-dimensional detector optically in front of the fiber lens.

5. (original) A method as claimed in claim 1, further comprising analyzing a two-dimensional distribution of the diffraction pattern.

6. (original) A method as claimed in claim 5, wherein the step of analyzing the diffraction pattern comprised determining a ratio of a lateral size to a transverse size of the diffraction pattern.

7. (original) A method as claimed in claim 1, wherein the step of fusing the fiber lens comprises exposing the fiber lens to an electrical arc.

8. (currently amended) A system for fusing an optical fiber lens, comprising:
a light source that injects light into an optical fiber;

a detector that detects a two-dimensional distribution of a diffraction pattern of the light exiting from a fiber lens at a proximal end of the optical fiber, the fiber lens being wedge-shaped and having been formed by polishing;

an arc fuser that fuses the fiber lens; and

a controller that activates the arc fuser in response to the two-dimensional distribution of the diffraction pattern detected by the detector.

9. (original) A system as claimed in claim 8, wherein the light source comprises a laser that is coupled to a distal end of the optical fiber.

10. (previously amended) A system as claimed in claim 8, wherein the detector is positioned relative to the fiber lens to detect a far-field diffraction pattern.

11. (original) A system as claimed in claim 8, wherein the detector is positioned greater than 0.5 centimeters from the fiber lens.

12. (original) A system as claimed in claim 8, wherein detector comprises a camera.

13. (cancelled)

14. (original) A system as claimed in claim 8, wherein the controller determines a ratio of a lateral size to a transverse size of the diffraction pattern.

15. (original) A system as claimed in claim 8, wherein the controller activates the arc fuser in a pulsed fashion until a desired diffraction pattern is detected by the detector.

16. (currently amended) A method for fusing an optical fiber lens, comprising:

injecting light into an optical fiber having a wedge-shaped fiber lens formed by polishing at a proximal end of the optical fiber;

detecting an aspect ratio of a diffraction pattern of the light exiting from a the fiber lens ~~at a proximal end of the optical fiber~~ by positioning a two-dimensional detector optically in front of the fiber lens; and

electro-fusing the fiber lens in response to the aspect ratio of the diffraction pattern by exposing the fiber lens to an electrical arc until an optimal aspect ratio is detected.

17. (previously added) A method as claimed in claim 16, wherein the step of electro-fusing the fiber lens by exposing the fiber lens to the electrical arc comprises exposing the fiber lens to electrical arc pulses.